REMARKS/ARGUMENTS

The Office Action:

(1) rejected claims 56 and 59-61 under 35 U.S.C. 102(b) as being anticipated by Collins et al. (U.S. Patent 5,556,501);

(2) rejected claims 14-15 and 65-66 under 35 U.S.C. 103(a) as being unpatentable over Collins et al.;

(3) rejected claim 19 under 35 U.S.C. 103(a) as being unpatentable over Collins et al. in view of DeOrnellas et al. (WO99/25568);

(4) rejected claim 19 under 35 U.S.C. 103(a) as being unpatentable over Collins et al. in view of Keizo (JP07-130712A);

(5) rejected claims 14-15 under 35 U.S.C. 103(a) as being unpatentable over Imai et al. (WO97/27622);

(6) rejected claim 19 under 35 U.S.C. 103(a) as being unpatentable over Imai et al. in view of DeOrnellas et al.;

(7) rejected claim 19 under 35 U.S.C. 103(a) as being unpatentable over Imai et al. in view of Keizo; and

(8) rejected claims 56, 59-61, and 65-66 under 35 U.S.C. 103(a) as being unpatentable over Imai et al. in view of Collins et al.

(1), (2), (5), (8) Regarding the rejection of claims 14-15, 56, 59-61, and 65-66, Applicants have cancelled the claims to overcome the Examiner's rejection.

(3) Regarding claim 19 under 35 U.S.C. 103(a) as being unpatentable over Collins et al. in view of DeOrnellas et al., Applicants submit that both Collins et al. and DeOrnellas et al. are silent with respect to the object of the present invention, which is to improve the reliability of the reactor chamber by preventing the deposits flaking from the reactor chamber walls. Collins et al. uses a chamber wall heating for improving process performance (col. 7, lines 46-48), and only links chamber wall adhesion of reactive films with differential pumping action (col. 11, lines 16-

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21). DeOrnellas et al. discloses a high temperature wafer heating process to achieve improved performance of the feature sidewalls (page 8, line 25 to page 9, line 9). Applicants submit that it is not obvious to make the leap, on the one hand, from a high performance improvement process with the chamber wall heating of Collins et al. and wafer heating of DeOrnellas et al. to, on the other hand, a high reactor reliability process as disclosed by the present invention.

Thus, Applicants submit that the present invention having a high temperature reactor wall to improve reactor reliability, is distinct from DeOrnellas et al.'s high temperature wafer platinum etch to improve process performance, from Collins et al.'s reactor chamber heating for improving process performance, and from the combination of Collins et al. and DeOrnellas et al.

Further, Collins et al. only discloses an etch reactor having a chamber wall temperature ranging from -150°C to 120°C (Chamber Temperature Control, col. 20, line 55). As shown in the data in the Declaration of DeOrnellas, filed in previous response, chamber wall heating to 80°C (which is the standard heating temperature of typical etch processes) results in mostly the failure of films flaking off from the chamber walls. The optimum heating temperature is 300°C for a reliable etch process, since an intermediate wall temperature still shows significant flaking failure.

With Collins et al. providing only the capability of chamber wall heating up to 120°C, Applicants submit that routine experimentation cannot discover the present invention high temperature chamber wall heating to improve reactor reliability by preventing wall deposits flaking, even with DeOrnellas et al.'s platinum etching process, and, thus, persons skilled in the art could not even stumble on the present invention by accident.

(4) Regarding claim 19 under 35 U.S.C. 103(a) as being unpatentable over Collins et al. in view of Keizo, Applicants submit that both Collins et al. and Keizo are silent with respect to the object of the present invention, which is to improve the reliability of the reactor chamber by preventing the deposits flaking from the reactor chamber walls. Collins et al. uses chamber wall heating for improving process performance (col. 7, lines 46-48), and only links chamber wall adhesion of reactive films with differential pumping action (col. 11, lines 16-21). Keizo discloses a high temperature wafer heating process to achieve improved performance of the feature sidewalls (abstract). Applicants submit that it is not obvious to make the leap, on the one hand, from a high performance improvement process with the chamber wall heating of Collins et

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al. and wafer heating of Keizo, on the other hand, to a high reactor reliability process as disclosed by the present invention.

With Collins et al. providing only the capability of chamber wall heating up to 120°C, Applicants submit that routine experimentation cannot discover the present invention high temperature chamber wall heating to improve reactor reliability by preventing wall deposits flaking, even with Keizo's platinum etching process, and, thus, persons skilled in the art could not even stumble on the present invention by accident.

(6) Regarding claim 19 under 35 U.S.C. 103(a) as being unpatentable over Imai et al., in view of DeOrnellas et al., applicant submits that both Imai et al. and DeOrnellas et al. are silent with respect to the object of the present invention, which is to improve the reliability of the reactor chamber by preventing the deposits flaking from the reactor chamber walls. Imai et al. uses chamber wall heating for improving process performance by halogen scavenging (abstract). DeOrnellas et al. discloses a high temperature wafer heating process to achieve improved performance of the feature sidewalls (page 8, line 25 to page 9, line 9). Applicants submit that it is not obvious to make the leap, on the one hand, from a high performance improvement process with the chamber wall heating of Imai et al. and wafer heating of DeOrnellas et al. to, on the other hand, a high reactor reliability process as disclosed by the present invention.

Imai et al. is silent with respect to his temperature capability so a normal temperature of typical etch chamber wall of up to 100°C can be assumed. As shown in the data in the Declaration of DeOrnellas, filed in previous response, chamber wall heating to 80°C (which is standard heating temperature of typical etch processes) results in mostly failure due to films flaking off from the chamber walls. The optimum heating temperature is 300°C for a reliable etch process, since an intermediate wall temperature still shows significant flaking failure.

With Imai et al. providing only the capability of chamber wall heating up to 100°C, Applicants submit that routine experimentation cannot discover the present invention high temperature chamber wall heating to improve reactor reliability by preventing wall deposits flaking, even with DeOrnellas et al.'s platinum etching process, and, thus, persons skilled in the art could not even stumble on the present invention by accident.

(7) Regarding claim 19 under 35 U.S.C. 103(a) as being unpatentable over Imai et al. in view of Keizo, Applicants submit that both Imai et al. and Keizo are silent with respect to the

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object of the present invention, which is to improve the reliability of the reactor chamber by preventing the deposits flaking from the reactor chamber walls. Imai et al. uses chamber wall heating for improving process performance by halogen scavenging (abstract). Keizo discloses a high temperature wafer heating process to achieve improved performance of the feature sidewalls (abstract). Applicants submit that it is not obvious to make the leap, on the one hand, from a high performance improvement process with the chamber wall heating of Imai et al. and wafer heating of Keizo to, on the other hand, a high reactor reliability process as disclosed by the present invention.

Imai et al. is silent with respect to his temperature capability so a normal temperature of typical etch chamber wall of up to 100°C can be assumed. As shown in the data in the Declaration of DeOrnellas, filed in previous response, chamber wall heating to 80°C (which is standard heating temperature of typical etch processes) results in mostly the failure of films flaking off from the chamber walls. The optimum heating temperature is 300°C for a reliable etch process, since an intermediate wall temperature shows significant flaking failure.

With Imai et al. providing only capability of chamber wall heating up to 100°C, Applicants submit that routine experimentation cannot discover the present invention high temperature chamber wall heating to improve reactor reliability by preventing wall deposits flaking, even with Keizo's platinum etching process, and, thus, persons skilled in the art could not even stumble on the present invention by accident.

Further, Applicants submit that the temperature range of 300 to 500°C is the optimum temperature condition for a reliable reactor chamber process, and that the reliability improvement is gradually increased from the typical chamber temperature of 80°C to an optimum temperature of 300°C. The data from Applicants shows that at the typical temperature of 80°C, flaking failure is observed, with no failure at all at 300°C.

For purposes of this Amendment, Applicants have removed claims not commensurate in scope with the non-volatile material etch.

In summary, Applicants submit that none of these references, singly or combination can anticipate nor can render these claims obvious.

Applicants respectfully request that a timely Notice of Allowance be issued in this case.

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The Commissioner is authorized to charge any underpayment or credit any overpayment to Deposit Account No. 06-1325 for any matter in connection with this response, including any fee for extension of time, which may be required.

Respectfully submitted,

Date: 9/28/05

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